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COMPLICATIONS OF TYPE II DIABETES AND THEIR COST

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OBJECTIVES: Diabetes is a chronic and potentially disabling disease that represents an important public health concern. Persons with diabetes are at increased risk of developing long-term complications and the treatment of diabetes complications is the most expensive form of diabetes care. Complications of diabetes also compound the economic cost of treating the condition which affects the individuals, families and society. This study aimed at calculating the cost of complications of type II diabetes in Pakistan. **METHODS:** Prevalence based Cost-of-Illness study was conducted in out-patient clinics of Karachi, Pakistan in 2006. The study population was all the persons with type II diabetes who attended the clinics.. A pre-tested questionnaire was used to collect the data from 345 randomly selected persons with diabetes. **RESULTS:** Of the total sample 72% had at-least one co-morbidity/complication and 48% had more than 1 co-morbidity/complications. From the complications, 55% had hypertension followed by dyslipidemia (30%). The mean direct cost of those diabetics who had no complication (only 28% of the sample) was Rs. 1226 (~US$20) compared to those who have one or more diabetes complication that is Rs 1779 (~US$ 30) and this difference was statistically significant ($P < 0.005$). About 40% of those who have one or more co-morbidity are not taking any medication for their health condition, which may further compound this cost in the future. **CONCLUSIONS:** It has been recognized that health care expenditures related to the complications of diabetes account for a substantial proportion of the public health care budget. Reducing the risks of developing complications can improve the quality of life, increase life expectancy and reduce the overall cost to society. In this era of scarce resources and rising costs, it is critical to have an understanding of the economics of diabetes and its complications in order to develop and implement sound public health and prevention policies.

PDB20

AN ANALYSIS OF DIFFERENCES IN COST QUARTILES FOR PATIENTS WITH TYPE 2 DIABETES IN A LARGE CLAIMS DATABASE WITH LINKED LABORATORY RESULTS

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OBJECTIVES: A number of studies have reported that patients with type 2 diabetes have higher annual mean expenditures than those without this condition. Additionally, the range of costs among these patients is quite large. Studies have also illustrated that certain acute events and co-morbidities drive excess mean costs. Whether these events and conditions affect cost in the same way across the distribution has not been studied. In order to more fully understand potential drivers of costs, we performed a descriptive analysis across quartiles of the cost distribution. **METHODS:** Data for this study come from a US health plan affiliated with i3 Innovus. We included members aged 18 or older that had evidence of type 2 diabetes over the period January 1, 2004 to December 31, 2006. An *index date* was defined as the date of the earliest qualifying medical or pharmacy claim. Patients were required to have continuous enrollment two years prior to (*baseline period*) and 2 years following (*follow-up period*) the index date. Variables were created for the following categories: demographics characteristics, diagnoses, medications, procedures and clinical markers (e.g. lab values for HbA1C/Lipids). Differences in potential cost drivers across the quartiles of the cost distribution were assessed. **RESULTS:** Mean annual cost for those in the highest quartile was 6X higher compared to those in the lowest quartile ($3,200 versus $19,700). Although there did not appear to be differences in HbA1c and lipid levels across the quartiles, meaningful differences were seen in many of the other variables analyzed. For example, "diseases of the heart" ranged from 17% in the lowest quartile to 42% in the highest quartile. **CONCLUSIONS:** The study illustrates that a quantile-based analytical approach may allow for a deeper understanding of the drivers of health care costs.

PDB21

MEDICAL COST AND SETTLEMENT PATTERN STUDY ON DIABETES MELLITUS INSURANTS IN CHINA

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OBJECTIVES: Study the medical cost of diabetes mellitus (DM) insurants and cost-influence factors, analyze the utilization of pharmaceuticals and compare the settlement pattern of medical insurance among various cities. **METHODS:** This retrospective study involved 1819 diabetes mellitus cases in 3 cities. A questionaire survey was conducted about their medical cost and health care utilization in 2007. The actual claim data were collected and analyzed. **RESULTS:** 1)The main influencing factors of patients' medical cost include the severity of illness, complications, level of hospital and the hospital-owned city, and 2)Outpatient medical cost per head was 6337 yuan, which is 20% of the family income per head. Inpatient medical cost per head was 9262 yuan, which is 71% of the annual income of the patient. The basic medical insurance(BMI) fund covered 63% and 61% of outpatient and inpatient cost, separately. The cost of patients with complication is 1.4 times that without any complication. 3) The average inpatient cost occured in the first level hospitals was 4176 yuan, and the cost in the second and third level hospitals was 1.47 and 2.74 times that in the first level hospitals, separately. 4) Drug cost accounts for 73% of the outpatient medical expense, and the top 8 prescribing drugs account for 80% of all prescription. Drug cost accounts for 50% of the inpatient medical expense, and the cost of top 10 money-consuming drugs account for 60% of total drug expense. It indicates that management of medical insurance should emphasize on monitoring of rational drug use. **CONCLUSIONS:** DM patients' medical cost has a close connection with the level of hospital and the drug use. To encourage the patients to fully utilize community health service and health service providers to use drug rationally by adjusting medical insurance policy will help to control the medical cost.

PDB22

HEALTH CARE COSTS AND RESOURCE UTILIZATION OF PATIENTS WITH TYPE 2 DIABETES MELLITUS WITHIN A NATIONAL US MANAGED CARE POPULATION

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OBJECTIVES: Type 2 diabetes mellitus (T2DM) is increasing dramatically and associated with a substantial economic burden in the US. The objective of this retrospective database analysis was to describe overall health care costs and resource utilization of patients with T2DM using eligibility, medical and pharmacy claims data from a large, national US health care organization that manages commercially-insured and Medicare members. **METHODS:** Patients were ≥18 years with evidence of T2DM between January 2006 and December 31 2007 and continuous enrollment for 12 months before (pre-index period) and after (post-index period) the date of T2DM identification. Overall post-index health care costs included medical (i.e., ambulatory, emergency services, inpatient, and other costs) and pharmacy costs, reflecting combined health plan and patient paid amounts. Post-index health care resource utilization included ambulatory visits (office and outpatient), emergency department (ER) visits, and inpatient admissions. **RESULTS:** Among 14 million patients within the database, 5.6% (n = 810,756) had evidence of T2DM. A total of 309,582 patients met the inclusion criteria. The mean age was 55.8 years and 45.2% were female. Mean overall health care costs (SD) were $11,644.41 ($27,904.19). Most of these were attributed to medical costs ($8,511.63 ($26,958.78)), of which the majority were ambulatory ($4,282.98 ($12,799.05)). Mean pharmacy costs were $3,132.85 ($3,930.09). A total of 99.2% of patients (n = 307,531)) had > 1 ambulatory visits, while 27.5% (n = 85,152) and 16.8% (n = 52,150) had ≥1 ER visits and inpatient stays, respectively. The mean number of ambulatory visits, ER visits and inpatient stays were 17.2 (16.3), 0.8 (2.8) and 0.3 (0.7), respectively. Visits to specialists accounted for approximately two-thirds of all ambulatory visits. **CONCLUSIONS:** Patients with T2DM were costly and consumed a considerable amount of health care resources. The primary driver of overall health care costs and resource utilization were ambulatory visits, of which the majority were to specialists. Strategies to optimize appropriate specialist utilization may reduce overall costs in this patient population.

PDB23

RESOURCE CONSUMPTION AND COSTS OF CARE THE YEAR BEFORE AND AFTER INITIATION OF INSULIN THERAPY IN SWEDISH PATIENTS WITH TYPE 2 DIABETES

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OBJECTIVES: To quantify and compare annual resource use and costs over time among Swedish patients with type 2 diabetes first treated with oral antidiabetic (OAD) medication alone and who subsequently initiated insulin treatment. **METHODS:** The study was based on data from the Real-Life Effectiveness and Care Patterns in Diabetes Management (RECAP-DM) study, a retrospective, population-based study on patients with type 2 diabetes identified in electronic patient records from 26 primary care centers in Uppsala county. Patients treated with OAD alone the year prior to insulin initiation in 2001–2003 were identified. Resource consumption was available from the patient records and the resource items included were visits to General practitioners (GP) or nurses at Primary care settings, visits to acute physician and visits at outpatient clinics and inpatient days. The annual costs were calculated by multiplying quantities of resource use by unit costs from a previous study and from the price list of Uppsala University Hospital. **RESULTS:** A total of 397 patients with type 2 diabetes were identified that initiated insulin treatment 2001–2003 after only receiving OAD. The annual resource use for diabetes nurse visits, visits to outpatient clinics and inpatient days increased significantly for patients during the year after insulin initiation compared to the year prior to insulin initiation when the patient received OAD alone. Even if annual resource use and costs for GP-visits decreased significantly ($p < 0.05$) during the same period, total costs and the costs of diabetes nurse visits and inpatient days increased significantly the year at and the year after insulin initiation compared to the year when the patient received OAD alone (costs for inpatient days $p < 0.1$). **CONCLUSIONS:** Patients initiating insulin treatment after receiving OAD alone consumes significantly more annual resources. Annual mean costs also increase significantly, driven by the increased costs of inpatient days and diabetes nurse visits.